

## CS130 In Class Problems

Create an Excel Workbook called **PUNetIDInClassExecl** and solve the following problems:

**Problem #1:** Name your worksheet "Difference"

Create a worksheet that contains two columns of numbers (X,Y). The third column (Difference) is to display the difference between the two numbers as a positive number. Use an IF statement in the difference column.

	A	B	C	D
1	X	Y	Difference	
2	43	26	17	
3	75	17	58	
4	23	66	43	
5	87	41	46	
6	32	74	42	
7	17	82	65	
8	98	16	82	
9	68	85	17	

**Problem#2:** Name your worksheet "Wages"

	A	B	
1	Wage Calculator		
2			
3	Enter Hours Worked		
4	Enter Hourly Wage		
5			
6	Gross Pay Is		
7			

The user enters the hours they worked and their hourly wage. Any hours they work over 40 means they will make 1.5 times their normal wage for only the hours worked over 40. Compute their gross pay in cell B6.

**Problem#3:** Name your worksheet "Grades".

Design a worksheet that allows the user the ability to enter a weight (e.g. 30%) for quizzes, a weight for the midterm (e.g. 30%), and a weight for the final (e.g. 40%). Then using the weights and the class scores, add an additional column that determines each student's class average.

	A	B	C	D	E	F	G
1	Class Grader						
2							
3	Enter Quiz Weight	30%					
4	Enter Midterm Weight	30%					
5	Enter Final Weight	40%					
6							
7	Name	ID#	Quiz1	Quiz2	Midterm	Final	Class Average
8	Adams	1	14	23	82	76	
9	James	2	12	21	76	68	
10	Jones	3	15	24	91	93	
11	Mann	4	14	19	88	73	
12	Smith	5	11	16	79	71	
13	Tolls	6	10	13	62	65	
14	Wells	7	5	10	43	55	
15	Max Points		15	25	100	100	
16							

If the sum of all weights do not add up to 100%, then print a message "CANNOT COMPUTE" for each of the student's grades.

**Problem#4:** Name your worksheet "Different Wages"

	A	B
1	Wage Calculator	
2		
3	Enter Hours Worked	
4	Enter Hourly Wage	
5		
6	Gross Pay Is	
7		

The user enters the hours they worked and their hourly wage.

1. Hours worked less than 40 gets paid the regular rate
2. Hours worked between 40 and 50 inclusive will make 1.5 times their normal wage on any hours over 40 and regular wage on all other hours
3. Hours worked over 50 will make 2.0 times their normal wage on any hours over 50, and amounts of money described in 1. and 2. for all other hours

Compute their gross pay in cell B6.

**Problem #5:** An approximation for  $\pi/4$  is  $1/1 - 1/3 + 1/5 - 1/7 + 1/9 - \dots$ . Design a worksheet that displays the approximation for  $\pi$  using the first 20 terms of the sequence

**Problem #6:**

I would like you to find the first 12 solutions to the equation:  $y=x^2$  over the interval  $1 \leq x \leq 12$  where  $x$  is an integer. You can use as many columns of data as you need.

**Problem #7:**

The harmonic mean of a set of numbers is the number of scores  $N$ , divided by the reciprocals of each number. As an example, the

harmonic mean of 7,8,7,3,6,2 is:

$$6 / (1/7 + 1/8 + 1/7 + 1/3 + 1/6 + 1/2) = 4.3$$

Design an Excel worksheet that allows the user the ability to enter up to 10 numbers and prints the harmonic mean of the numbers entered. Note: The user can enter from 1 to 10 different numbers inclusively.

Here is an example:

Numbers	Reciprocal
7	0.142857143
8	0.125
7	0.142857143
3	0.333333333
6	0.166666667
2	0.5

Harmonic Mean = 4.253165

Make your worksheet look like the following:

The screenshot shows a Microsoft Excel window titled 'Microsoft Excel - Book1'. The menu bar includes File, Edit, View, Insert, Format, and Tools. Below the menu bar are sub-menus for Data, Window, and Help. The toolbar shows various icons for undo, redo, font size (set to 10), bold, italic, text color, background color, and fill. The active cell is H27. The worksheet has two columns, A and B. Row 1 is a header row with a brown background and the text 'Harmonic Mean'. Row 2 is empty. Row 3 has 'Numbers' in column A and 'Reciprocal' in column B. Rows 4-9 contain numerical data. Row 10 is empty. Row 11 is empty. Row 12 is empty. Row 13 is empty. Row 14 is empty. Row 15 has 'Harmonic Mean Is' in column A and the value 4.253164557 in column B. Row 16 is empty. The status bar at the bottom shows 'NUM'.

	A	B
1	<b>Harmonic Mean</b>	
2		
3	<b>Numbers</b>	<b>Reciprocal</b>
4	7	0.142857143
5	8	0.125
6	7	0.142857143
7	3	0.333333333
8	6	0.166666667
9	2	0.5
10		
11		
12		
13		
14		
15	<i>Harmonic Mean Is</i>	4.253164557
16		

If a value is typed into A10, the reciprocal is calculated in B10 without any dragging down being necessary. Again, set the worksheet up to handle up to **10** numbers.